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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,553	10/31/2003	Taiji Morimoto	245402007700	3605
25226	7590	12/13/2004	EXAMINER	
MORRISON & FOERSTER LLP			LEE, HSIEN MING	
755 PAGE MILL RD			ART UNIT	
PALO ALTO, CA 94304-1018			PAPER NUMBER	
			2823	

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/699,553	Applicant(s) MORIMOTO ET AL.	
	Examiner Hsien-ming Lee	Art Unit 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-19 is/are rejected.
- 7) ☒ Claim(s) 5 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

HSIEN-MING LEE  
PRIMARY EXAMINER

12/9/2004

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) Foreign document
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 121503
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION*****Remarks******Election/Restrictions***

1. Applicant's election of claims 5-19 in the reply filed on 8/23/2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

***Claim Objections***

2. Claim 8 is objected to under 37 CFR 1.75(c), as being of improper dependent form for *failing to further limit* the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 8 is dependent from claim 7 and recites a same subject matter "molecular beam epitaxy", which does not further limit claim 7.

3. Claim 5 is objected to because of the following informalities: the limitation "forming on a single substrate a plurality of laser portions each oscillating laser light of a different wavelength" is not clear to the Examiner. Does it mean -- forming on a single substrate a plurality of laser portions, each **of the laser portions** oscillating laser light of a different wavelength --.

In addition, in claim 5, at line 2, inserting -- **comprising** -- after "substrate" is suggested. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 5-8 and 12-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Cho et al. (US 2002/0041148).

In re claims 5-8 and 14, Cho et al. teach the claimed method of fabricating a semiconductor laser device, forming on a single substrate, comprising a plurality of laser portions 12 and 14 (Fig.5C), each of laser portions 12 and 14 oscillating laser light of a different wavelength, i.e. the laser portion 12 oscillates a wave length of 635~780 nm, whereas, the laser portion 14 oscillates a wave length of 450~550 nm (paragraph [0062]), wherein a laser portion previously formed 12 and a laser portion subsequently formed 14 are formed by different crystal growth methods, respectively, because the previously formed laser portion 12 (III-V compound) is formed by **MOCVD** at high temperature range of 650~750 °C, whereas, the subsequently formed laser portion 14 is formed by **MBE** at a lower temperature range of 250~350 °C (paragraph [0054]).

In re claims 12 and 13, Cho et al. teach that the maximum and minimum temperatures of a substrate in growing a crystal for the laser portion previously formed 12 is respectively higher than those of the substrate in growing a crystal for the laser portion subsequently formed 14 because the laser portion 12 is grown at a maximum temperature

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of 750 °C and a minimum temperature of 650 °C, which are higher than the maximum temperature 350 °C and a minimum temperature of 250 °C that is for growing the laser portion 104 (paragraph [0054]).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5-8, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi (US 2001/0021209) in view of Cho et al.

In re claim 5, Onishi teaches the claimed method of fabricating a semiconductor laser device, forming on a single substrate, comprising a plurality of laser portions 320 and 350 (Fig.9A), each of laser portions 320 and 350 oscillating laser light of a different wavelength (abstract, and paragraph [0088]), wherein a laser portion previously formed 320 and a laser portion subsequently formed 350 are formed by either MOCVD or MBE method (paragraphs [0124] and [0125]).

Onishi does not suggest that the laser portion previously formed 320 and a laser portion subsequently formed 350 are formed by different crystal growth methods. For example, the portion 320 is formed by MOCVD and the portion 350 is formed by MBE.

Cho et al., in an analogous art, teach that a previously formed laser portion 12 (III-V compound) is formed by **MOCVD** at high temperature range of 650~750 °C, whereas, a subsequently formed laser portion 14 is formed by **MBE** at a lower temperature range of 250~350 °C (paragraph [0054]).

Therefore, it would have been obvious to one of the ordinary skill in the art, at the time of the invention was made, to choose MOCVD for forming the previously formed laser portion 320 of Onishi and MBE for forming the subsequently formed laser portion 350 of Onishi, as suggested by Cho et al., since by using different growing methods at different temperatures for forming two different laser portions would prevent deterioration of device performance caused by inter-diffusion. (paragraph [0063], Cho et al.)

In re claims 6-8, Onishi teaches that the laser portions 320 and 350 are formed by MOCVD or MBE (paragraph [0127]).

In re claim 18, Onishi teaches that the laser portion previously formed 320 is formed mainly of an AlGaAs based crystal and the laser portion subsequently formed 350 mainly of an AlGaInP based crystal because the laser portion 320 comprises layers 321, 322, 323 and 325, which comprises AlGaAs (Fig.8B and paragraphs [0124] and [0125]), and the laser portion 350 comprises layers 311, 312, 313 and 315, which comprises AlGaInP (Fig.9A and paragraph [0127]).

In re claim 19, Onishi further teaches that the laser portion previously formed 110 is formed mainly of an AlGaInP based crystal and the laser portion subsequently formed 120 mainly of an AlGaAs based crystal because the laser portion 110 comprises layers 111, 112, 113 and 115, which comprises AlGaInP (Fig.2 and paragraph [0089]), and the laser portion 120 comprises layers 121, 122, 123 and 125, which comprises AlGaAs (Fig.2 and paragraph [0090]).

8. Claims 9-11 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi in view of JP 10-229249.

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Onishi does not teach that the laser portion previously formed contains p type dopant (i.e.) having diffusion smaller than that of p type dopant ( i.e. zinc, carbon or magnesium) the laser portion subsequently formed.

JP 10-229249, however, in an analogous art, teach forming a first laser portion 14 with MBE and a second laser portion 16 with MOCVD, wherein the laser portion 14 is doped with beryllium (Be) and the second laser portion 16 is doped with Zn (paragraph [0018]).

Therefore, it would have been obvious to one of the ordinary skill in the art, at the time of the invention was made, to combine the teachings of JP 10-229249 with Onishi so that the previously formed laser portion of Onishi is doped with Be and the subsequently formed laser portion of Onishi is doped with Zn, since by this manner it would prevent the inter-diffusion between the two laser portions.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hsien-ming Lee whose telephone number is 571-272-1863. The examiner can normally be reached on Tuesday-Thursday (8:00 ~ 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hsien-ming Lee  
Primary Examiner  
Art Unit 2823

Dec. 9, 2004

HSIEN-MING LEE  
PRIMARY EXAMINER

*12/9/2004*